

Setup Guide

# hp StorageWorks 30ux Standalone UDO Drive

First Edition (May 2004)

**Part Number:** AA961-96002

This guide describes procedures for unpacking, installing, configuring, and troubleshooting installation issues for the HP StorageWorks 30ux Standalone UDO Drive.



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HP StorageWorks 30ux Standalone UDO Drive Setup Guide

First Edition (May 2004)

Part Number: AA961-96002

Regulatory Model Number: N3620N1Z

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## About This Guide

This user guide provides information to help you:

- Unpack the standalone UDO drive
- Install and configure the standalone UDO drive
- Load media
- Troubleshoot installation issues

“About This Guide” topics include:

- Related documentation, page 6
- Conventions, page 6
- Getting help, page 8

## Related documentation

In addition to this guide, HP provides corresponding information:

- *HP StorageWorks Optical 30ux Standalone UDO Drive User's Guide*
- *HP StorageWorks Optical 30ux Standalone UDO Drive Getting Started Poster*

## Conventions

Conventions consist of the following:

- Document conventions
- Text symbols

### Document conventions

This document follows the conventions in Table 1.

**Table 1: Document conventions**

Element	Convention
Cross-reference links	Blue text: Figure 1
Key and field names, menu items, buttons, and dialogue box titles	<b>Bold</b>
File names, application names, and text emphasis	<i>Italics</i>
User input, commands and directory names, and system responses (output and messages)	Monospace font COMMAND NAMES are uppercase monospace font unless they are case sensitive
Variables	<monospace, italic font>
Web site addresses	Blue underlined sans serif font text ( <a href="http://www.hp.com">http://www.hp.com</a> )

## Text symbols

The following symbols may be found in the text of this guide. They have the following meanings:



**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

---



**AVERTISSEMENT :** le non-respect de ces instructions expose l'utilisateur à des risques potentiellement très graves.

---



**AVVERTENZA:** La mancata osservanza delle indicazioni fornite in un messaggio così evidenziato, può provocare lesioni personali o mettere in pericolo la vita dell'utente.

---



**VORSICHT:** In dieser Form hervorgehobener Text weist darauf hin, dass die Nichtbeachtung der Anleitungen zu Verletzungen oder zum Tod führen kann.

---



**ADVERTENCIA:** el texto con esta marca indica que si no se siguen las instrucciones, pueden producirse lesiones corporales o incluso la muerte.

---



**警告:** その指示に従わないと、人体への傷害や生命の危険を引き起こす恐れがある警告事項を表します。

---



**警告:** 以这种方式显示的文本表示: 如果不按警告中的指导信息操作, 可能会导致人身伤亡。

---



**Caution:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

---

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**Note:** Text set off in this manner presents commentary, sidelights, or interesting points of information.

---

## Getting help

If you still have a question after reading this guide, contact an HP authorized service provider or access our web site: <http://www.hp.com>.

## HP technical support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>.

---

**Note:** For continuous quality improvement, calls may be recorded or monitored.

---

Be sure to have the following information available before calling:

- Technical support registration or contract number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions
- HP StorageWorks Library & Tape Tools support ticket (if applicable)

## HP storage web site

The HP web site has the latest information on this product. Access storage at: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution. You can also visit <http://www.hp.com/go/udo>.



## HP authorized reseller

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP web site for locations and telephone numbers:  
<http://www.hp.com>.



# Unpacking

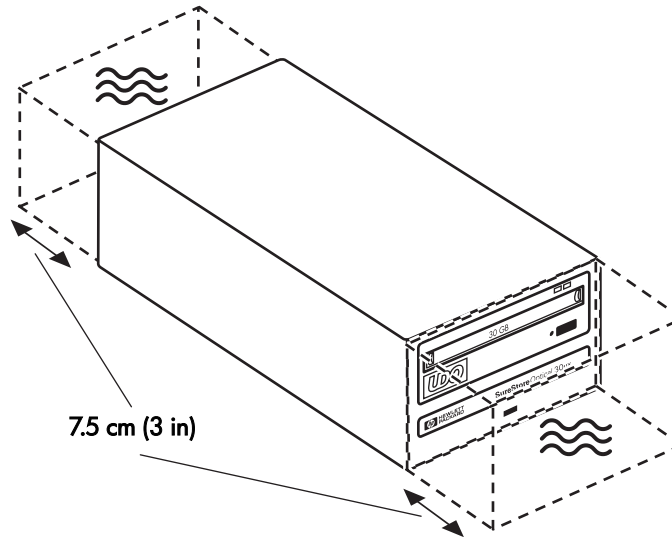


This chapter describes the following:

- Selecting an installation site, page 12
- Removing the packing materials, page 14

## Selecting an installation site

Select an installation site, noting the environmental considerations (see Figure 1 and Table 2).




**Figure 1: Environmental considerations**

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**Note:** Locate the AC outlet near the standalone UDO drive. The AC power cord is this product's main AC disconnect device and must be easily accessible at all times.

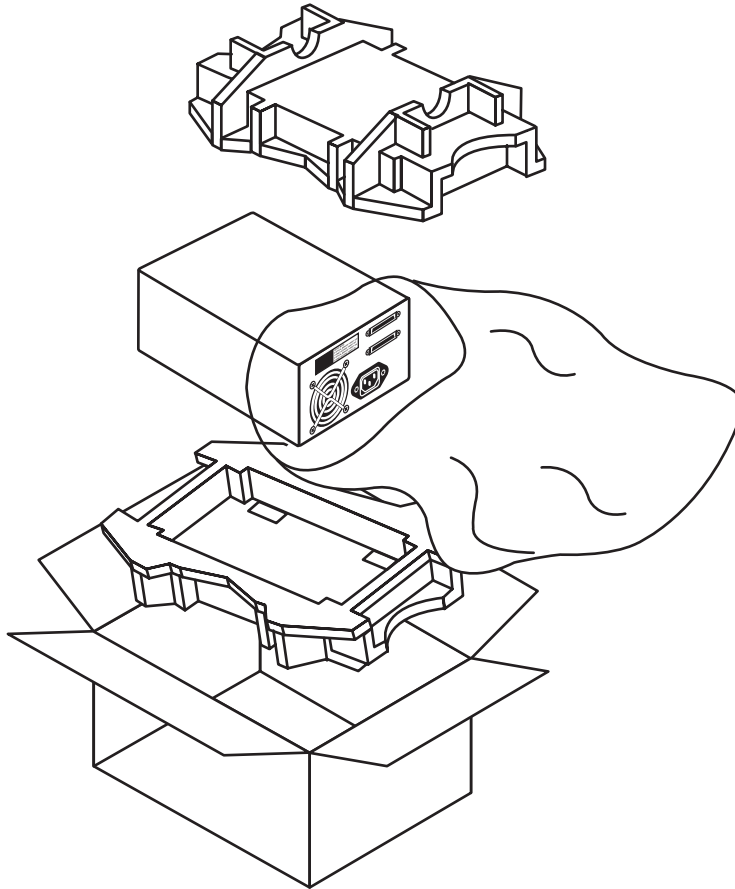
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**Table 2: Location criteria**

Specification	Description
Clearance	Enough room to comfortably insert disks in the disk slot with 2-3 inches on all other sides to allow air circulation.
Power requirements	<ul style="list-style-type: none"> <li>■ Line voltage: 100 to 240 VAC</li> <li>■ Line frequency: 50 to 60 Hz</li> <li>■ Power consumption: 275 W maximum</li> </ul>
Temperature: <ul style="list-style-type: none"> <li>■ Operating temperature</li> <li>■ Non-operating temperature (without media)</li> </ul>	<ul style="list-style-type: none"> <li>■ 15°C to 35°C (59°F to 95°F)</li> <li>■ -40°C to 60°C (-40°F to 140°F)</li> </ul>
Humidity: <ul style="list-style-type: none"> <li>■ Operating humidity</li> <li>■ Non-operating humidity (without media)</li> </ul>	<ul style="list-style-type: none"> <li>■ 10% to 80% RH</li> <li>■ 5% to 90% RH</li> </ul>
Air quality   <b>Caution:</b> Excessive dust and debris can damage optical media and drives.	Minimal sources of particulate contamination. Avoid areas near frequently used doors and walkways, stacks of supplies that collect dust, printers that create paper dust, and smoke-filled rooms.

## Removing the packing materials

Remove the standalone UDO drive packing materials (see Figure 2).



**Figure 2: Unpacking the standalone UDO drive**

1. Open the carton.
2. Remove the accessories and set them aside for later use.
3. Remove the top packing cushion.
4. Remove the standalone UDO drive from the carton.
5. Remove the antistatic bag covering the standalone UDO drive

---

**Note:** Inspect the drive for any damage that may have occurred during shipment. Pay special attention to areas behind any scuffs on the anti-static bag. If damage is detected, contact your authorized service representative.

---

6. Place the packing materials back into the carton and store it for future shipment.





# Installation

## 2

This chapter describes the following:

- Identifying product components, page 18
- Identifying panel features, page 20
- Getting connected, page 22

## Identifying product components

The components listed in Table 3 may be supplied with the standalone UDO drive, depending on the configuration.

**Note:** Visit <http://www.hp.com/go/udo> for additional information for your standalone UDO drive, including accessories and upgrade options.

**Table 3: Supplied accessories**

Component	Description
Power cord	U.S. power cord only
SCSI terminator	Low-voltage differential SCSI terminator to terminate the SCSI chain
UDO media	One rewritable 30 GB cartridge, HP part number Q2031A  <b>Note:</b> HP UDO 30GB Write Once media is also available to order. The part number is Q2030A
Documentation CD	CD containing the user's guide, and web links to product registration, diagnostics and technical support
Getting started poster	Quick reference for preparing the standalone UDO drive for operation
Setup guide	Manual includes procedures for unpacking, installing, and configuring the standalone UDO drive
Driver CD	CD containing host operating system drivers
Miscellaneous information	May include data sheets, upgrade information, production information, and additional promotions

The components listed in Table 4 are not supplied with the standalone UDO drive, but are needed for operation.

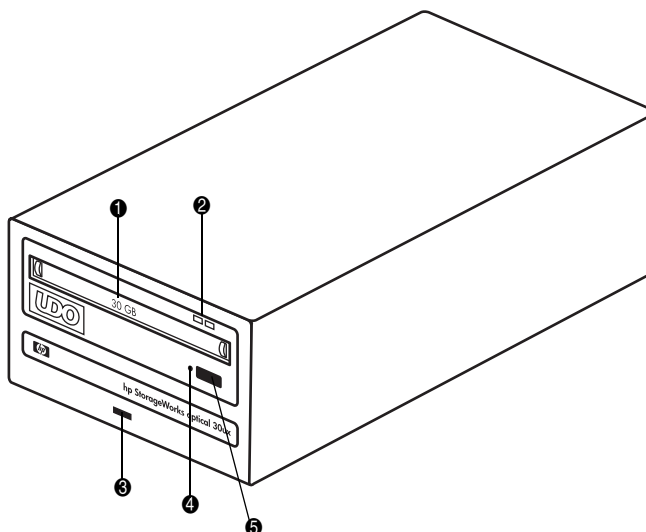
**Table 4: Needed components**

Component	Description
SCSI cable	High-density 68-pin (Micro D) connector for low-voltage differential interfaces
Host Bus Adapter (HBA)	<p>Low-voltage differential SCSI (LVDS) with a free address for each drive. A single-ended (SE) HBA can be used with this LVDS device. However, to ensure optimum performance, HP recommends using an LVDS HBA to take advantage of higher data transfer rates. If an SE HBA is used, the maximum cable length will be limited to 3 meters.</p> <hr/> <p><b>Note:</b> If the drive is placed on a bus with an SE peripheral, the bus will run in SE mode even if the HBA is LVDS.</p> <hr/>
Power cord	Localized power cord as required

## Identifying panel features

Identify the following panel features before you install the standalone UDO drive (see Figure 3 and Figure 4 on page 21).

### Front panel features and descriptions

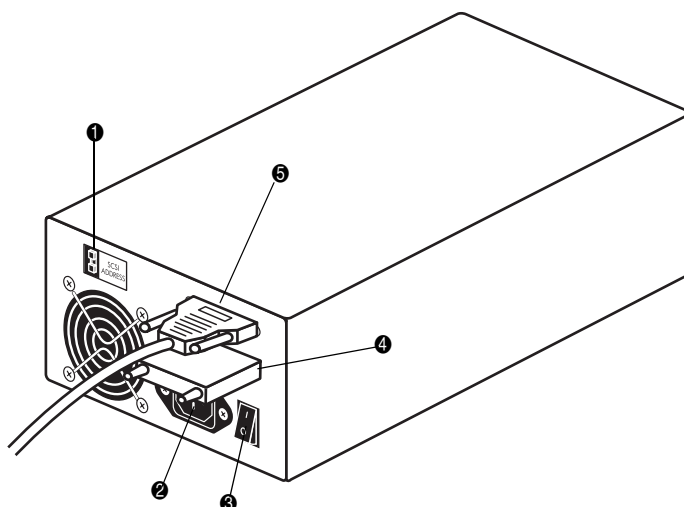


- |                      |                          |
|----------------------|--------------------------|
| ❶ Disk slot          | ❷ Eject tool access hole |
| ❸ Activity indicator | ❹ Eject button           |
| ❺ Power indicator    |                          |

**Figure 3: Front panel features**

- Disk slot—The opening used to load and unload UDO media.
- Activity indicator—Lit when the drive is accessed and while the drive is loading or ejecting a disk.
- Power indicator—Remains lit while the power is on.
- Eject tool access hole—An opening for a small, flat slotted screwdriver used to manually eject a disk in an emergency, such as a power outage.
- Eject button—Pressed to eject the disk from the drive. The drive power must be ON.

## Back panel features and descriptions



- |                   |                             |
|-------------------|-----------------------------|
| ❶ SCSI ID switch  | ❹ SCSI port with terminator |
| ❷ Power connector | ❺ SCSI port with SCSI cable |
| ❸ Power switch    |                             |

**Figure 4: Back panel features**

- SCSI ID switch—Used to set the SCSI ID.

---

**Note:** Be careful not to inadvertently change the SCSI ID when handling the standalone UDO drive.

---

- Power connector—Connection for the power cord.
- Power switch—Turns power to the standalone UDO drive on and off.
- SCSI port with terminator —68-pin high-density SCSI connector (Micro D-type). Cable may be attached to either connector.
- SCSI port with SCSI cable—68-pin high-density SCSI connector (Micro D-type). Terminator may be attached to either connector.

## Getting connected

1. Set the standalone UDO drive's SCSI ID (see Figure 5).

The SCSI ID you choose identifies the drive on the bus and sets its priority for use on the bus. You may want to refer to your host adapter's documentation for guidance on installing this drive on the bus.

- a. Turn drive power to OFF.
- b. Check which SCSI addresses are available.

---

**Note:** Ensure that there are no SCSI ID conflicts with existing devices. Usually the host bus adapter is set to 7 and the addresses available are in the range 0 to 6. The drive's default setting is "4". For a wide bus, addresses 8 through 15 are also available.

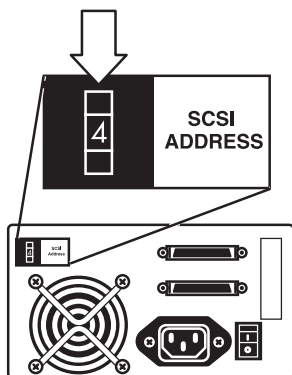
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- c. Locate the SCSI ID switch on the back panel of the standalone UDO drive.
- d. Set the SCSI ID by pushing the button at the top or bottom of the window:
  - The button above the ID window *decreases* the number by one
  - The button below the ID window *increases* the number by one

---

**Note:** If you change the SCSI ID with power on, you must power cycle the drive so that the host recognizes the new ID.

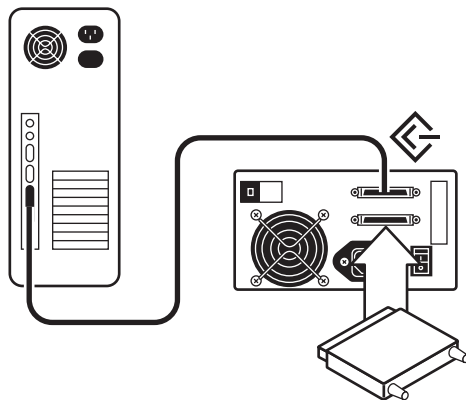
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**Figure 5: Setting the SCSI ID**

2. Connect the drive to your host computer and terminate the last device in the SCSI chain (see Figure 6).

The standalone UDO drive is a wide, low-voltage differential SCSI-3 device. You can connect the drive to a SCSI bus either as the only device on the bus or as one of a number of devices on the bus (daisy-chained).



**Figure 6: Connecting to the host computer**

The maximum supported cable length for an LVDS interface is 12 meters. The maximum supported cable length for SE is 3 meters. This determines the maximum length available for connection to your host, jukebox, or other devices.



**Caution:** HP recommends that you use SCSI cables with thumbscrew connectors to safeguard against interference.

**Note:** This drive is a SCSI “fast” device. The maximum allowable length of the SCSI cable cannot exceed 12 meters on an LVDS bus, including the internal cable length of all peripherals on the bus. Use 0.5 meter (1.6 ft) as the internal SCSI cable length of this drive.



**WARNING:** This product can only be used with an HP approved power cord for your specific geographic region. Use of a non-HP approved power cord may result in: 1) noncompliance with individual, country-specific safety requirements; 2) insufficient conductor ampacity that could result in overheating with potential personal injury and/or property damage; and 3) a fractured power cord which could cause the internal contacts to be exposed, which could potentially subject the user to a shock hazard. HP disclaims all liability when HP approved power cords are not used.

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---





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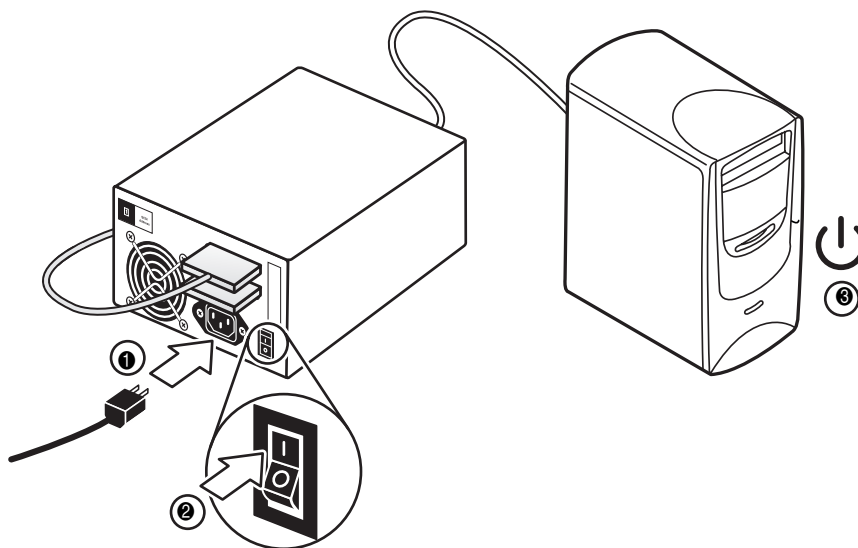
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3. Connect power to the drive. Power on the drive first, and then the host system (see Figure 7).
  - a. Plug one end of the power cord into the AC line connector on the back of the standalone UDO drive and the other end into the power outlet.
  - b. Press the power switch on the rear of the optical disk drive so that it is in the “ON” position.
  - c. Switch on the power to the host computer, or if the host computer has been on during this installation, power cycle the host computer so that it will see the disk drive.

---

**Note:** For some host computers to recognize the optical disk drive, the power to the disk drive must be switched on *before* the power to the host computer.

---



**Figure 7: Connecting power**

---

**Note:** The maximum cable length for LVDS is 12 meters. The maximum cable length for SE is 3 meters.

---

# Configuration

## 3

This chapter describes the following:

- Using the standalone UDO drive on your host system, page 28
- Loading UDO media, page 32

## Using the standalone UDO drive on your host system

The following procedures describe how to configure the standalone UDO drive with your host operating system.

---

**Note:** To use 30-GB disks, your operating system or application software must support 8,192 byte-per-sector media. HP-UX 11.x versions provide this natively with kernel patches as applicable (see “Obtaining HP-UX patches” on page 29).

---

## Using drivers for Windows 2000, Windows 2003, and Windows XP

The Windows operating systems require the supplied UDF driver for the Windows filesystem. This will allow Windows to work with the UDO media. For information on installing the drivers, refer to the driver documentation and CD-ROM that shipped with the standalone UDO drive.

Once the drivers have been installed:

1. Ensure that power is applied to the drive before applying power to the host computer.
2. Double-click on **MY COMPUTER**.
3. Right-click on the **REMOVABLE DISK** icon.
4. In the **Format** dialog box, verify that capacity is listed as “13.99 GB” and that the File System selection is “UDF”.
5. Enter a disk volume label if desired (*Backup*, for example).
6. Select **START**. A dialog box displays warning you that all data on the volume disk will be erased. Click **OK**.
7. Close the dialog box. You are now able to read, write, and erase data on your disk.

---

**Note:** For optimal performance, HP recommends using the “cached write mode” setting. It is accessed under the **Properties > Write Mode** tab.

---

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## Connection to Windows 2000 and 2003 Server versions (32- and 64-bit systems)



**Caution:** To avoid software conflicts due to RSM drivers claiming the device, do not attempt to attach a standalone UDO drive to a Windows system before completing the following steps.

---

The Windows operating systems do not offer any native driver support for file systems (NTFS) for the 8K sector sized UDO media.

Though native support is not offered by the Windows operating systems, there are important steps required in order for your device to operate correctly, including after third party software has been installed.

1. Disable Removable Storage Manager and reboot the system before attaching the standalone UDO drive.
2. Windows 2000 systems require a minimum of Service Pack 4 to be installed as well as Microsoft Hotfix, as described in Knowledge Base Article KB831293. This patch is required for the Windows operating system to recognize an 8K sector sized device.

---

**Note:** If you are using a supported software application, the UDF driver for the Windows file system is not required.

---

## Connection to HP-UX (11.x)

The following procedures are for configuring an HP-UX operating system to use native drivers with the standalone UDO drive.

### Obtaining HP-UX patches

Your HP-UX system may require software patches to ensure that the standalone UDO drive will install and operate correctly with your system. HP-UX versions 11.0, 11.11 and 11.23 require patches. To view the most up-to-date list of patch requirements, visit <http://www.hp.com/go/udo>. To download required patches, go to <http://www.hp.com/go/support> or refer to your HP-UX documentation for patch locations.

---

**Note:** HP-UX versions 11.x provide limited native support for the standalone UDO drive, including file system support for rewritable media.

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**Note:** When using a third party application, HP recommends you consult with the application vendor for configuration requirements and recommendations.

---

## Formatting and mounting UDO rewritable disks

After loading the drive with media, you can format and mount the media as you would any other disk drive in HP-UX.

1. Identify the SCSI address of the desired drive by inspecting the output of `ioscan-fn`:
  - a. Scroll through the `ioscan` output and look for the entry “AA961A” in the **Device Description** column.
  - b. Look for the corresponding `/dev/rdisk` and `/dev/dsk` entries.

---

**Note:** If the `/dev/rdisk` and `/dev/dsk` entries are not listed, it may be necessary to perform an “`insf -e`” to build the appropriate device files.

---

- c. Record the device file information listed, such as:  

```
disk    4 0/6/0/0.0.0    sdisk    CLAIMED    DEVICE    HP    AA961A
          /dev/dsk/c4t0d0 /dev/rdisk/c4t0d0
```
2. Format and mount the disk using the bolded device file information shown in the above example.
  - a. Create a directory to use as a mount point, such as `mkdir /mnt/UDO`.
  - b. Format the disk using the `newfs` command:  

```
newfs -F vxfs /dev/rdisk/c4t0d0
```
  - c. Mount the disk to the directory you created in step 2.a, such as  

```
mount /dev/dsk/c4t0d0 /mnt/UDO.
```

Your UDO disk is now formatted and mounted, and can be used on HP-UX.

## Connection to Sun Solaris, IBM AIX, Tru-64, and Linux

Use third-party drivers. No native support is available with these operating systems.

---

**Note:** For operating systems requiring third party drivers, HP recommends attaching the standalone UDO drive to the host with the host powered off. Power on the standalone UDO drive and then power on the server.

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## Loading UDO media

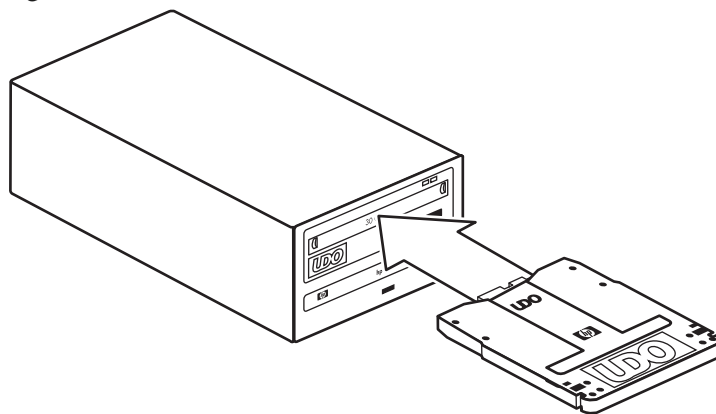
---

**Note:** Label all disks before loading them into the standalone UDO drive. Some application software packages require that you load and eject disks by using instructions in the software. If you use a software application to manage files in the standalone UDO drive, check the software documentation before proceeding with these steps.

---

Load UDO media into the drive by inserting the disk gently but firmly into the opening on the front panel, shutter end first, and with the side you want to access facing up (A or B). See Figure 8. The drive will automatically pull the disk fully into position.

Figure 8



**Figure 8: Loading media**

---

**Note:** For detailed information on using or ordering HP UDO media, refer to the getting started poster and the user's guide that shipped with the standalone UDO drive.

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# Troubleshooting Installation

## 4

This chapter describes the following:

- Resolving installation issues, page 34
- Using HP StorageWorks Library and Tape Tools, page 36

## Resolving installation issues

If the procedures in Table 5 do not address or resolve your problem, visit <http://www.hp.com/go/udo> for additional assistance, or contact HP technical support (see “Getting help” on page 8).

**Table 5: Troubleshooting installation**

Problem	Solution
Drive will not power on	<ul style="list-style-type: none"> <li>■ Check that the power indicator light on the control panel is on. If it is not, make sure the power switch on the back panel is on.</li> <li>■ Replace the power cord.</li> </ul>
Host computer system does not recognize the drive	<ul style="list-style-type: none"> <li>■ Ensure the drive is connected and powered on. The drive must be on when booting the host computer for the drive to be recognized.</li> <li>■ If the drive is the last device on the SCSI bus, check that it has been terminated and that the maximum cable length has not been exceeded.</li> <li>■ Check SCSI ID assignments and resolve any conflicts.</li> <li>■ Ensure you are connected to the correct SCSI bus type. UDO drives are LVDS devices.</li> <li>■ If using a narrow (8-bit) HBA, make sure that all addresses are in the range 0 through 7.</li> <li>■ For Windows operating systems, use the device manager to rediscover the drive.</li> <li>■ For HP-UX, use <code>ioscan</code> to verify that the HBA and attached devices are claimed.</li> <li>■ For other operating systems, refer to the system administrators guide for diagnosing missing peripherals.</li> </ul>

**Table 5: Troubleshooting installation (Continued)**

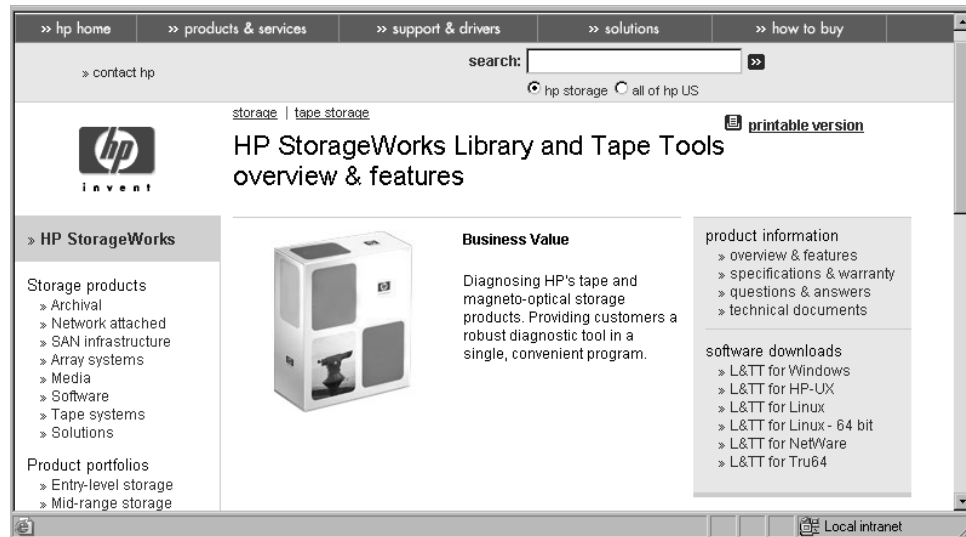
Problem	Solution
Other SCSI devices no longer work when the drive is installed	<ul style="list-style-type: none"> <li>■ Check SCSI ID assignments and resolve any conflicts.</li> <li>■ Ensure that the SCSI ID for the HBA is different from that of the drive.</li> <li>■ Check for proper SCSI cabling and termination.</li> <li>■ Ensure the maximum cable length for the bus has not been exceeded (12 meters for LVDS and 3 meters for SE).</li> </ul>

## Using HP StorageWorks Library and Tape Tools

HP StorageWorks Library and Tape Tools (L&TT) is a robust diagnostic tool for tape mechanisms, tape automation, magneto-optical and UDO products. L&TT provides functionality for firmware downloads, verification of device operation, maintenance procedures, failure analysis, corrective service actions and some utility functions. Seamless integration is provided with HP's hardware support organization through generating and emailing support tickets. The support ticket delivers a snapshot, or an in-depth view, of the storage system.

L&TT is a free download from the web and deploys in less than five minutes. It is ideal for customers who want ensured product reliability, self-diagnostics, and faster resolution of device issues.

For more information, visit <http://www.hp.com/support/tapetools>.



**Figure 9: HP StorageWorks L&TT**

# Glossary

This glossary defines terms used in this guide or related to this product and is not a comprehensive glossary of computer terms.

**cartridge**

A plastic enclosure that contains an optical disk. The cartridge is labeled “A” or “B” to denote separate sides of the optical disk. The optical disk is never removed from the cartridge.

**disk**

*See* optical disk.

**driver**

A program that allows the operating system to communicate with a peripheral device.

**multifunction drive**

An optical disk drive that supports both rewritable and WORM optical disks. The drive detects the disk type by reading a factory-stamped code on the disk, and automatically determines whether to operate in rewritable or WORM mode.

**optical disk**

A term synonymous with the 5.25-inch optical disk. There are two types of optical disks: rewritable and WORM.

**rewritable optical**

An optical disk technology in which data can be repeatedly written using optical reading and writing technology.

**SCSI**

An acronym for the Small Computer Systems Interface.

**terminator**

A resistor array device used for electrically terminating a SCSI bus. A SCSI bus must be terminated at its two physical ends. A peripheral device uses a terminator only if it is at the end of the bus.

**ultra density optical**

UDO (Ultra Density Optical), like HP's DVD+RW, uses Phase Change technology in order to achieve increased data density on a 130mm disk. Phase Change technology uses a laser to read and write from the active layer on the disk. The recording process uses the laser to heat each data bit to a specific temperature. One temperature allows the bit to form a crystalline (reflective) mark and a different temperature allows the bit to form an amorphous (less reflective) mark. Data is read by using a low power laser beam to detect the difference in the levels of reflectivity recorded on the disk.

**write-once or WORM**

An additional operating mode available with multifunction drives. When a write-once (WORM) disk is inserted, the drive will write data, but will not write over data that has been previously written. This feature is useful for applications that need permanent data security and audit trails.

**write-protect**

A feature that prevents data from being written to a disk. A write-protect tab is located on both sides of the optical disk cartridge to enable write-protection on one or both surfaces of the disk.

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